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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,565	03/11/2005	Peter Stewart Allan	MARK5974	7323

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EXAMINER

EWALD, MARIA VERONICA

ART UNIT

PAPER NUMBER

1722

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/03/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/527,565	ALLAN ET AL.	
	Examiner	Art Unit	
	Maria Veronica D. Ewald	1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 1/17/07.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 19-32 is/are pending in the application.
- 4a) Of the above claim(s) 31 and 32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 22 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. As written, both claims 22 and 28 recite the limitation "the vibration means." However, there is insufficient antecedent basis for this limitation in the claim and thus, appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 19 – 23, 26 – 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jameson, et al. (U.S. 6,010,592). Jameson, et al. teach a tool that improves the flow characteristics of molding material, the tool comprising: a fixed portion defining an elongate chamber (item 102 – figure 1); a flow path through which a material to be molded passes in use, the flow path passing through a portion of the elongate chamber (item 110 – figure 1); an ultrasonically vibrating probe disposed coaxially within

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the elongate chamber and at least partially into the flow path so as to directly contact and vibrate the material passing through the flow path as the material is being injected (item 116 – figure 1; column 8, lines 15 – 30); wherein the flow path defines a longitudinal axis and wherein the ultrasonically vibrating probe extends transverse to a longitudinal axis of the flow path and wherein an end portion of the ultrasonically vibrating probe is arranged for direct contact with the material passing through the flow path in use (item 110 – figure 1; column 8, lines 20 – 25); wherein a portion of the vibration means extends at least partially into the flow path to directly vibrate material in the flow path (column 9, lines 34 – 40); wherein the ultrasonically vibrating probe is mounted on a part of the tool that forms the flow path (figure 1); wherein there is a seal disposed about the ultrasonically vibrating probe at a nodal point on the ultrasonically vibrating probe where little or no vibration occurs (item 122 – figure 1; column 15, lines 15 – 30); wherein the seal includes a metallic seal means (item 148 – figure 1; column 15, lines 15 – 30); wherein the ultrasonically vibrating probe includes a sonotrode (column 2, lines 55 – 65); wherein the ultrasonically vibrating probe is configured to operate at a frequency of between 10 kHz to 50 kHz (column 15, lines 10 – 15).

However, Jameson, et al. do not teach that the ultrasonic probe is inherently included in an injection molding tool, but the reference does teach that the apparatus can be implemented in many industrial applications including extrusion or in any other applications in which a melt flows under pressure through an orifice or through a plurality of orifices (column 1, lines 60 – 65; column 2, lines 20 – 25).

Because of the similarity between extrusion and injection molding, it would be obvious to one of ordinary skill in the art to configure an injection molding apparatus to include the tool of Jameson, et al. to improve not only the flow characteristics of the melt flow but also the production rates (column 2, lines 1 – 10). Both extrusion and injection molding manipulate viscous liquids or polymer melts and thus, the apparatus of Jameson, et al. can be used to improve the characteristics of the polymer melt. Furthermore, the reference teaches that the ultrasonic tool can be applicable to the food industry to improve production rates in mass transfer and container filling operations (column 4, lines 25 – 30), which can include the filling of pastry and/or confectionary molds, in which the viscous material exhibits similar characteristics to polymer melt flow.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to incorporate the apparatus of Jameson, et al. with an injection molding tool for the purpose of improving the melt flow characteristics, decreasing thermal degradation of the melt flow and thereby increasing production rates.

Claims 24 – 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jameson, et al. in view of Grunitz (U.S. 6,203,747). Jameson, et al. teach the characteristics previously described but do not teach that there is a non-metallic seating means for mounting the ultrasonically vibrating probe.

In a method to induce melt flow and homogenize melt flow in an injection molding cylinder via ultrasonic vibration, Grunitz teaches that the vibration element is mounted to

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the injection cylinder via flanges which allows the vibration element to be prestressed (column 4, lines 17 – 20). Such prestressing prevents intrinsic distortion of the vibration element during the vibration process (column 4, lines 20 – 22). In addition, there is a sliding seal between the injection cylinder and the mold itself, which allows the vibration of the injection cylinder to remain independent from the mold part (column 4, lines 25 – 30). This reads on the Applicant's claims that there is a non-metallic seating means for mounting the vibration means on the apparatus, the non-metallic seating means being configured to prevent metal to metal contact between the vibration means and the apparatus; wherein the non-metallic seating means are also configured to provide a seal about the vibration means.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to modify the apparatus of Jameson, et al., such that it is mounted to the injection cylinder via flanges, to prestress the vibration cylinder and prevent any distortion during vibration while also providing a sliding seal disposed about the vibration means such that the vibration is concentrated to the material and the injection cylinder while not affecting the fixed mold part.

### ***Response to Arguments***

15. Applicant's arguments, see pages 5 – 6, filed January 17, 2007, with respect to the rejection(s) of claim(s) 19 – 23 and 28 – 30 under 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon

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further consideration, a new ground(s) of rejection is made in view of Jameson, et al. (U.S. 6,010,592).

Applicant argued that the primary references of Nakamura (U.S. 6,190,601) and Eicher, et al. (U.S. 6,361,733) do not teach an elongate chamber in which the ultrasonically vibrating probe is disposed coaxially within the elongate chamber and at least partially into the flow path so as to vibrate the material passing through the flow path. Examiner agrees and thus, the rejection(s) have been withdrawn; however, in light of the amendments, Examiner has cited the reference of Jameson, et al. Jameson, et al. teach a tool comprised of an elongate chamber (item 102 – figure 1) in which an ultrasonically vibrating probe is disposed to contact melt flow (item 116 – figure 1). The melt flow path enters the elongate chamber perpendicular to the chamber and thus, transverse to the probe (item 110 – figure 1).

### ***Conclusion***

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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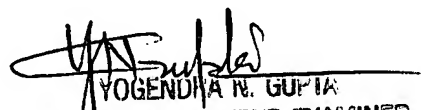
shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Veronica D. Ewald whose telephone number is 571-272-8519. The examiner can normally be reached on M-F, 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MVE

  
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